Febuxostat sodium

Cat. No.: HY-14268A

CAS No.: 1140907-13-6

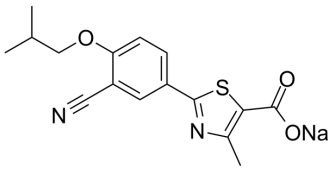
Molecular Formula: $C_{16}H_{15}N_2NaO_3S$

Molecular Weight: 338.36

Target: Xanthine Oxidase

Pathway: Metabolic Enzyme/Protease

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Febuxostat (TEI 6720) sodium is a potent, selective and non-purine xanthine oxidase (XO) inhibitor with a K_i value of 0.6 nM. Febuxostat sodium has the potential for the research of hyperuricemia and gout[1][2][3].
In Vitro	Febuxostat sodium displays potent mixed-type inhibition of the activity of purified bovine milk xanthine oxidase, with K_i and K_i' values of 0.6 nM and 3.1 nM respectively, indicating inhibition of both the oxidized and reduced forms of xanthine oxidase [1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Febuxostat sodium (5-6 mg/kg; i.e.; daily for 4 weeks) (fed a high-fructose diet (60% fructose) for 8 wk) significantly reduces lomerular pressure, renal vasoconstriction, and afferent arteriolar area relative to fructose+P rats, and shows no significant effects in rats on a normal diet when febuxostat treatment alone[2]. Febuxostat sodium (3-4 mg/kg; p.o.; daily for 4 weeks) with oxonic acid (750 mg/kg; oral gavage; daily for 4 weeks) preventes renal injury in 5/6 Nx (5/6 nephrectomy) rats with and without coexisting hyperuricemia[3]. Febuxostat sodium (2.5 mg/kg; p.o.; daily for 12 weeks) inhibits plaque formation in ApoE−/− mice and reduces the levels of ROS in the aortic wall of atherosclerotic mice[4]. Febuxostat sodium (15.6 mg/kg; p.o.; once daily for 21 successive days) shows antidepressant effect by significantly reduces the immobility time in the FST in mouse[5]. Febuxostat sodium (10 mg/kg; p.o.; daily for 21 days) administration with doxorubicin caused a significant decrease in nephrotoxicity markers and inflammatory mediators, restoration of normal values of oxidative stress biomarkers and hampering the expression of renal caspase-3[6]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Biol Chem. 2019 Dec 27;294(52):20084-20096.
- Front Pharmacol. 22 June 2022.
- Harvard Medical School LINCS LIBRARY

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REFERENCES

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[2]. Sanchez-Lozada LG, et al. Effects of febuxostat on metabolic and renal alterations in rats with fructose-induced metabolic syndrome. Am J Physiol Renal Physiol, 2008, 294(4), F710-F718.

[3]. Sanchez-Lozada LG, et al. Effect of febuxostat on the progression of renal disease in 5/6 nephrectomy rats with and without hyperuricemia. Nephron Physiol, 2008, 108(4), p69-p78.

[4]. Nomura J, et al. Xanthine oxidase inhibition by febuxostat attenuates experimental atherosclerosis in mice. Sci Rep. 2014 Apr 1;4:4554.

[5]. Karve AV, et al. Evaluation of effect of allopurinol and febuxostat in behavioral model of depression in mice. Indian J Pharmacol. 2013 May-Jun;45(3):244-7.

[6]. Khames A, et al. Ameliorative effects of sildenafil and/or febuxostat on doxorubicin-induced nephrotoxicity in rats. Eur J Pharmacol. 2017 Jun 15;805:118-124.

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